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## **The Optimistic Self-Efficacy Beliefs of Students with Learning Disabilities**

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### **Abstract**

*This article reviews three studies that provide evidence that students with learning disabilities (LD) display optimistic academic self-beliefs, even in the face of relatively poor academic performance. In the first study, a quantitative approach was used to explore the spelling and writing self-efficacy of 133 adolescents with and without LD. Students with LD over-estimated their performance in spelling and writing. In the second study, a series of interviews with 28 adolescents with LD and 7 specialist LD teachers revealed that the students viewed themselves as low in academic optimism, whereas the teachers viewed the students as overly optimistic about academic tasks. A third study explored the academic motivation and procrastination of 208 undergraduates with and without LD, and found students with LD had moderate levels of optimism about academic tasks, but lower levels of optimism about self-regulatory capabilities. The paper concludes with a presentation of common and emergent themes from the three studies, and offers recommendations for practitioners and avenues for future research.*

This article explores the notion that some students with learning disabilities (LD) show evidence of unwarranted optimistic self-efficacy beliefs. The term *learning disability* typically refers to any of a number of intrinsic disorders that interfere with the acquiring, organizing, retaining, or understanding of information, and that are caused by impairments to psychological processes such as phonological processing, executive functions (i.e., planning, monitoring, and metacognition), or memory (Learning Disabilities Association of Canada, 2007). Learning disabilities range in severity, and interfere with various academic skills including oral language, reading, spelling, writing, and mathematics. The incidence of LD varies depending on definition, but it is generally accepted that 3% - 6% of students are affected with some form of LD (Kibby & Hynd, 2001), with literacy areas most commonly affected. In school, students with LD experience academic difficulties, but display a pattern of unexpected low achievement, rather than global low achievement (Learning Disabilities Association of Canada, 2007). Research has consistently shown that students with LD possess lower academic self-beliefs than non-learning disabled (NLD) students (e.g., Chapman, 1988; Gans, Kenny, & Ghany, 2003; Lackaye, Margalit, Ziv, & Ziman, 2006), with academic self-concept especially vulnerable to the influence of weak academic performance. At the same time, a number of practitioners and motivation researchers have noted — both anecdotally and empirically — that in spite of academic deficits and lower academic self-concept, some students with LD display a veneer of academic optimism that contrasts with their lower-than-average performance. These unexpectedly optimistic self-beliefs may result in a tendency to overestimate academic capabilities and to prepare insufficiently for academic tasks (Graham, Schwartz, & MacArthur, 1993; Klassen, 2002; Pintrich, Anderman, & Klobucar, 1994). Few studies have set out to directly examine the phenomenon of academic mis-calibration or optimism of students with LD. The current article examines the notion that some students with LD possess unexpectedly optimistic academic self-beliefs. The article begins by examining the relationships among optimism, motivation beliefs, and LD. Next, three recent studies (Klassen, 2007; Klassen & Lynch, 2007; Klassen, Krawchuk, Lynch, & Rajani, in press) that explore academic motivation and LD are described, with attention paid to the role of optimistic self-beliefs of students with LD. The final section analyzes and integrates the findings from the three studies, and concludes with suggestions for practitioners and researchers arising from the integrated findings.

Optimism refers to “an inclination to put the most favorable construction upon actions and events to anticipate the best possible outcome” (Merriam-Webster, 2007) and is usually seen as a desirable personality characteristic. In educational settings, optimism is seen as an important coping mechanism

that has a strong impact on how students respond to adversity and difficulty (Hoekman, McCormick, & Barnett, 2005). Adolescent optimism is a functional trait that allows young people to recover from the inevitable setbacks, disappointments, and challenges encountered on the path to adulthood. Seligman (1995) proposes that optimism helps minimize the effects of anxiety, and is fostered by meaningful and challenging opportunities for personal growth, and by strong social support offered to children and adolescents. Hoekman et al. (2005) tested a model of motivation, affect, and school satisfaction for a sample of gifted early adolescents, and found that optimism played a central role in the determination of participants' levels of motivation and school satisfaction. But optimism can also be maladaptive in some circumstances. Unwavering optimism in the face of continued failure and overwhelming challenges might not be functional, because it may reduce motivation to address negative behaviours and attitudes. Adolescents and emerging adults tend to have a stronger "optimistic bias" than adults, and considerable research has shown that adolescents are more likely to display unwarranted optimism that dysfunctional behaviours like smoking, drug use, and unsafe sex will not result in negative outcomes (Arnett, 1992). The levels of optimism and the optimistic bias of students with LD have not been investigated, but studying motivation constructs, like self-concept and self-efficacy, may be instructive.

In most motivation theories, optimism is viewed through the lens of an individual's self-beliefs, in which optimistic (i.e., higher-than-warranted) estimates of competence are expected to result in increased effort and persistence, and to promote higher achievement in challenging circumstances. For example, expectancy-value theorists propose that a person's beliefs about his or her capabilities to complete a task and the value assigned to that task interact to predict behaviour, and levels of engagement and academic achievement (Pintrich & Schunk, 2002). Self-concept theorists believe that optimistic self-concept judgments promote achievement (e.g., Marsh, 1990). These judgments are influenced by cognitive appraisal of skill level ("I'm pretty good at reading") as well as affective appraisal of skill ("I'm pleased with my reading ability") that are primarily formed through social comparison ("Compared with others in my class, I'm doing really well in reading"). According to motivation researchers, failure and poor performance lead to doubts about general intellectual abilities, which in turn lead to reduced effort, further failure, and poor academic outcomes (Licht & Kirstner, 1986). It is not surprising that children and adolescents with LD, who typically have a history of low achievement in at least one domain, display lower academic self-concept, a tendency toward learned helplessness, and low generalized expectations of future academic success (Gans et al., 2003). However, relatively lower self-concept beliefs do not necessarily mean *low* self-concept beliefs. Meltzer, Roditi, Houser Jr., and Perlman (1998) found

students with LD to express lower academic self-concept than NLD students, but still within the “average” to “above-average” range. These comparatively lower self-beliefs are considered to reflect the academic difficulties inherent in an LD profile, and to reciprocally contribute to continuing failure in which poor academic performance reinforces already negative feelings about school (Chapman, 1988). But self-concept is formulated through an examination of current or past functioning (Bong & Skaalvik, 2003), and is different from self-efficacy, which reflects beliefs about the capability to perform tasks in the future. Although researchers have explored the self-concept of individuals with LD, less attention has been paid to self-efficacy beliefs, which have been considered “an essential motive to learn” (Zimmerman, 2000, p. 82), and are predictive of functioning in a wide range of domains (Bandura, 1997).

### **Academic Self-Efficacy and LD**

Self-efficacy beliefs — the context-specific evaluations of the capability to successfully complete a task — are similar to self-concept beliefs in the role played by perceptions of competence, but they differ in their specificity and relationship to performance tasks (Bong & Skaalvik, 2003). Self-concept is comparative (e.g., “Compared to others, I’m good at math”), and consists of both cognitions and related feelings, whereas self-efficacy is less based on one’s feelings about a task, and is established through criterion reference (e.g., “I’m confident that I can solve most of these math problems”) rather than through comparison with others (Bong & Skaalvik, 2003). Self-efficacy beliefs influence motivation — choice of activity, task perseverance, level of effort expended — and finally, degree of success achieved. Miscalibrated self-efficacy — overconfidence (or underconfidence) about capabilities to perform a task — may develop from faulty task analysis or from a lack of self-knowledge (Bandura & Schunk, 1981), two problems believed to affect students with learning disabilities (Butler, 1998; Meltzer et al., 1998; Swanson, 1989). Overstatements of self-capability may be the result of students’ self-protective tendency to portray themselves in a positive light (Alvarez & Adelman, 1986). The issue of calibration — that is, the congruence of self-efficacy beliefs with ensuing performance — has been discussed by self-efficacy researchers (e.g., Bandura, 1997), who maintain that optimistic self-efficacy beliefs are instrumental to the successful completion of challenging tasks.

For the majority of students, possessing optimistic self-efficacy beliefs is a positive attribute, because it means the students believe they can achieve what they set out to do, and can accomplish challenging tasks with the nec-

essary effort and persistence. Bandura (1997) recounts the example of students with optimistic levels of self-efficacy beliefs who set higher goals for themselves, were more strategic problem-solvers, and performed at a higher level than students with equivalent cognitive abilities, but lower self-efficacy. But high academic self-efficacy beliefs may not operate in the same way for students with LD. Most students are moderately optimistic when asked to rate their academic abilities (e.g., Pajares & Kranzler, 1995; Pajares & Miller, 1994), but a few studies have suggested that students with LD tend to seriously overestimate their performance (e.g., Graham et al., 1993; Pintrich et al., 1994). Klassen (2002) reviewed 22 articles that explored the self-efficacy beliefs of students with LD. More than half of the studies exploring writing self-efficacy concluded that students with LD were markedly over-optimistic about their writing abilities, even though the students had specific writing deficits. In other words, the students with LD reported feeling confident (i.e., self-efficacious) about their writing skills even in the face of daily evidence that they were poor writers. Significant incongruence between self-efficacy beliefs and subsequent performance may not be benign: naive optimism or “gross miscalculation (between efficacy judgments and performance) can create problems” (Bandura, 1989, p. 1177). High degrees of self-efficacy may be functional for some students, and dysfunctional for others. Overly optimistic efficacy beliefs might reflect poor preparation, faulty task analysis, and a lack of awareness of one’s strengths and weaknesses.

In this article, I provide evidence that some students with LD display an optimistic bias in their academic behaviours and may, in some cases, possess overly optimistic self-efficacy beliefs that may hinder learning and academic success. In order to explore the idea that some students with LD are overly optimistic, three recent studies that explore the motivation beliefs, and particularly the self-efficacy beliefs, of students with LD are examined. After a brief presentation of the findings from the three studies, common themes running through the three articles and emerging from a comparison of the three studies are explored and discussed. The article concludes with suggestions for practitioners who work with students with LD, and for researchers who are interested in studying the motivation beliefs of individuals with LD.

## **Description of Research**

The research reported in the next sections represents a mixed models program of research that explores the motivation beliefs of students with LD. Johnson & Onwuegbuzie (2004) use the term “mixed models” to represent

a research approach that uses both quantitative and qualitative methods in a series of separate but related research studies. The first study is a quantitative exploration of the spelling and writing self-efficacy of 133 adolescents with and without LD (Klassen, 2007). The second study is a qualitative exploration of the academic self-efficacy of adolescents with LD, with data collected from 28 adolescents and 7 specialist teachers (Klassen & Lynch, 2007). The third study explores motivation and procrastination of 208 undergraduates with and without LD (Klassen et al., 2007). The three studies are each briefly described and summarized, after which common and emergent themes from the studies are highlighted.

### *Spelling and Writing Self-Efficacy of Adolescents with LD*

Participants in the first study (Klassen, 2007) were 133 (68 LD [46 males, 22 females] and 65 NLD [30 males, 35 females]) grade 8 and 9 students selected from three high schools (two public and one independent) in a metropolitan area in Western Canada. Students with LD were selected from learning support classes offered to students with LDs identified by qualified school or clinical psychologists. Students in the normally achieving (NLD) group were members of three randomly selected grade 8 and 9 social studies classes from one of the public schools and were assumed to possess average IQ scores and literacy skills. Motivation measures consisted of spelling and writing prediction scores (a proxy for self-efficacy that is psychometrically useful because prediction scores are directly comparable to performance scores), and spelling and writing self-efficacy (e.g., “rate your degree of confidence from 0 *Cannot do at all*, through 5 *Maybe can do*, to 10 *Certain can do*”) of getting 30% to 100% correct for this (writing) test by circling a number to the right of each of these percentages. Scores for the eight levels of confidence (30% to 100% with increments of 10%) were summed for a total self-efficacy score. Performance measures consisted of spelling and writing tasks from a standardized achievement battery. All measures displayed acceptable levels of reliability, and the prediction and self-efficacy scores were highly correlated ( $r_s = .75$  to  $.85$ ), and showed similar correlations with performance, suggesting the prediction scores were a valid proxy for conventional self-efficacy measures.

As expected, the students with LD scored significantly lower on spelling and writing predictions, spelling and writing self-efficacy, and spelling and writing performance ( $ps < .01$ ). A cursory look at the results would lead to the conclusion that students with LD have lower self-efficacy beliefs, coupled with lower levels of spelling and writing performance. However, a closer look at the

data show students with LD were, in fact, more optimistic in their performance than their NLD peers. Paired *t*-tests of the prediction and performance scores showed students with LD significantly over-estimated their spelling and writing performance, whereas the NLD students were accurate with both tasks. The LD group over-estimated their spelling performance by 52% and over-estimated their writing performance by 19%. Figure 1 shows the pattern of spelling and writing predictions and performance for both groups.

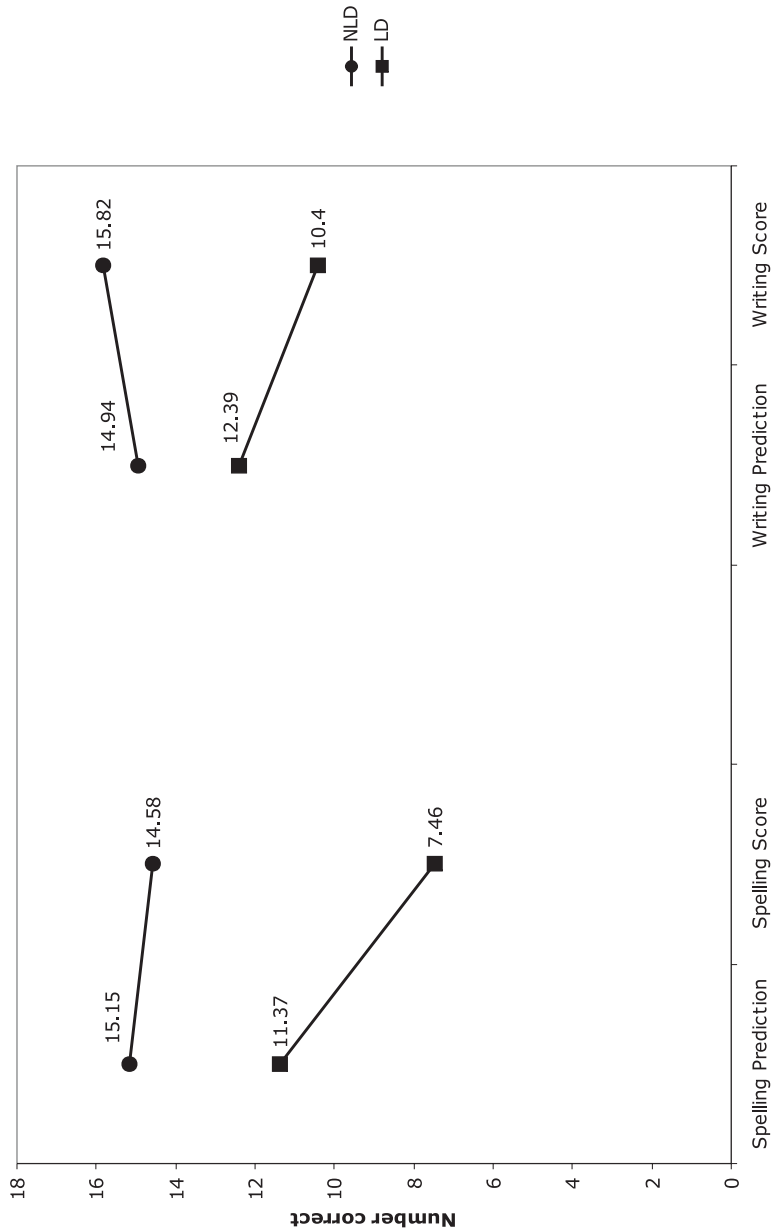
*Brief discussion.* Participants with LD displayed lower spelling and writing self-efficacy than the NLD group, but were actually more *optimistic* than their NLD peers, relative to their performance. This study's findings suggest that students with LD may not only experience academic difficulties, but that they also lack the "reflective awareness about knowledge" (Butler, 1998, p. 282) that defines metacognition. As a result of mis-calibrations between academic expectations and academic performance — that is, unwarranted optimism or overconfidence — adolescents with LD may study less than their non-LD peers, and may spend less time working on reading and writing tasks. Students with LD, who arguably need to spend additional time reinforcing their academic weaknesses, may end up spending less time on academic work because they fail to recognize their academic short-comings. Teachers should be aware that for some students, and especially students with LD, high levels of confidence might not reflect knowledge about a task, but might instead signal difficulties with task-analysis and self-awareness, or might serve a self-protective role.

### *Students' and Teachers' Perspectives on Self-Efficacy and LD*

In the first study, quantitative methods were used to explore the optimism of adolescents with LD. The second study (Klassen & Lynch, 2007) incorporated a qualitative approach in which interviews conducted with students with LD and their teachers examined the self-efficacy beliefs of students with LD. Approaching the study of self-efficacy from multiple perspectives (i.e., students and teachers) and using contrasting methodological approaches should result in a deeper, more contextualized understanding of the motivation beliefs held by students in academic settings, and should allow new and unexpected findings to emerge. In the second study, focus group and individual interviews were conducted with 28 early adolescents (20 boys and 8 girls with a mean age of 13.6 years) diagnosed with severe LD (based on provincial Ministry of Education criteria) and with 7 special education teachers (5 women and 2 men with a mean of 11.2 years of experience) who teach students with LD. Interviews followed a semi-structured script that featured scenarios and



**Figure 1**  
*Mean levels of spelling and writing predictions and scores for LD and NLD students.*



questions based on previous self-efficacy research. After transcribing and coding the interviews, the data were further analyzed using the sequence suggested by Creswell (2003) in which the coded data are sorted, sifted, and graphically displayed to identify relationships, patterns, themes, and differences between groups. Analysis of the transcripts resulted in 34 codes, which were eventually synthesized into five major themes.

Students and teachers were asked about the levels of self-efficacy (phrased as “confidence”) and the accuracy of student performance expectations. We coded student and teacher references to accuracy, over-confidence, and under-confidence. Thirty-four of the student comments were coded as “over-confidence,” with about half of these directed at other students, e.g., “He’s always over-confident.” Eighteen comments highlighted students’ own over-confidence, e.g., “I studied like 3 hours or something for a test and I thought I’d do really well, but then I got like a C minus or something” (B13 [refers to 13-year-old boy]), and “Sometimes you just think, ‘Oh this is going to be so easy,’ and then your ego kind of takes hold, then it’s like ‘Well, I don’t really have to do a lot (of work) on this,’ and then you don’t do too well” (B13).

When asked, “Do you think students with LD have less or more confidence about doing tasks than their peers?” almost all students with LD responded that they had less confidence: “Students with LD? Less confident, definitely” (B14), and “They’re (students with LD) less confident — it’s because they have to work way harder just to keep up” (B13). Students expressed higher levels of confidence about certain subjects, with most students suggesting that they were more confident in subjects that they found appealing. Interest and enjoyment were linked with confidence by eight of the students: “I think that you have more confidence in something you like” (G13), and “Well, if you’re good at it, then you will always be much more confident” (B13). Several students noted specific subject areas in which they were most confident: “If you’re really good at what you do, then you feel pretty confident — I’m confident in metal work, but not confident in English” (B14) and “I’m confident in my electives, but I don’t have very much confidence to do that (a writing task) — I basically think, ‘Oh well, even if I try my hardest, there’s no way I’m going to get very good in this,’ so I just don’t try” (B13).

Students with LD characterized themselves as being either accurate or under-confident in calibrating their self-efficacy with performance: “Yeah, I guess sometimes I haven’t studied that much, but on some tests I do better than I expect, so I underestimate myself, but I know I should have studied more,” (B13) and “I never really try to guess, but it’s always a surprise when

(an assignment) comes back — usually they're pretty high compared to what I expected, so I guess I underestimate" (G14). When directly asked about the accuracy of their confidence beliefs on an essay-writing task, 25 of 28 students characterized their academic predictions as generally accurate.

In contrast to the students' perspective, but congruent with the research findings that students with LD are overly optimistic about their performance, teachers were most likely to characterize students as over-confident about academic tasks. Sherry, a teacher with 6 years of experience, suggested, "If they're an extremely damaged student, they will tell you they are going to do wonderfully...they are constantly surprised at what they get (i.e., in terms of teacher-assigned marks)." Hedda (8 years of experience) commented, "I think they're way too overconfident for tests and exams; they tend to think they know more than they do." Three of the teachers reported that students seemed to become more accurate in their efficacy-performance calibrations as they moved through high school (7 comments): "Grade 8s and 9s seem to be the ones who are too confident and the grade 10s and 11s are more realistic — they seem to be aware of where their strengths and weaknesses lie" (Fraser, 11 years of experience). No teachers suggested that students with LD were generally accurate in their calibration of confidence and performance.

All of the seven specialist teachers stated that adolescents with LD lacked awareness of their own learning strengths and weaknesses, and that this lack of awareness influenced how they formed their efficacy beliefs: "They don't always know what they are missing — they don't know they can't spell because they rarely get that feedback" (Marie, 28 years of experience). "It (confidence) definitely has to do with self-analysis. They don't want to examine their own work, because it's hard, you know, to really look at it and slow down" (Will, 4 years of experience). "You're not going to be able to motivate anybody if they don't understand who they are" (Hedda). Several teachers perceived the meta-cognitive knowledge of the students with LD to be late developing: "The upper kids (i.e., grades 10-12) seem to be aware by that time — if they're still in school — what their strengths and weaknesses are" (Sherry), and "I think a lot of it has to do with their maturing and their becoming aware of themselves... at the lower levels, they come to a written task, and they don't realize that they don't have the ability to do the writing" (Pat, x years of experience).

Most of the teachers (five of seven) but only a few of the students discussed self-protection as a factor influencing self-efficacy beliefs. Marie believed that students were not honest with themselves: "They're lying to themselves in a way, because if they say it out loud (that they are well-prepared for an exam) they think it might actually happen." Sherry noted that students pro-

tect themselves in their areas of weakness: “They’ve got to protect themselves, and some of them still believe that they have skills in some (non-academic) areas, but they’re just not the skills the world wants right now.” When asked why some students with LD were over-confident, most students struggled to form a response, but two students responded with references to self-protection, “It’s because they don’t want their ego to be hurt” (G14), and “It happens because they’re protecting themselves” (B13).

*Brief discussion.* The results of this qualitative study provided an insider’s viewpoint of the factors influencing self-efficacy and other motivation beliefs, and offered context and explanation for previous findings. The students’ perspective, in particular, provides researchers with some explanation for previously unanswered questions about the mis-calibration of efficacy and performance. Students viewed themselves as either accurate in the calibration of efficacy and performance, or under-confident; in contrast, teachers viewed students as over-confident. Consistent with most research findings, students expressed the belief that their confidence levels were lower than those of their non-LD peers. The participants in this study knew that their skill levels were lower than those of their peers, but believed that their performance expectations were generally “pretty accurate.” Teachers viewed students’ calibration differently, and claimed that students were “constantly amazed” at the low marks they received for completed tasks. Teachers noted that students with LD had considerable difficulties gaining an accurate awareness of academic functioning, perhaps due to self-protective tendencies.

### *Study of Motivation and Procrastination of Students with LD*

The third study provides additional context and explanation for the idea that some students with LD are optimistically miscalibrated. For the purposes of this integrative article, we report the quantitative results from a mixed methods study that explored the academic self-efficacy, self-efficacy for self-regulation, and procrastination of undergraduate students with and without LD (Klassen et al., 2007). Procrastination is a dysfunctional motivation construct that is defined as “the tendency to waste time, delay, and intentionally put off something that should be done” (Tuckman, 1991, p. 479). The previous two studies explored the idea that functional motivation variables might operate in different ways for individuals with LD; the third study examines the possibility that dysfunctional motivation variables, like procrastination, also operate differently for individuals with LD. For individuals without LD, procrastination negatively affects academic performance (Ferrari, 2001) and has been found to be associated with low self-esteem and anxiety (Ferrari, Doroszko, & Joseph,

2005), but there is no research that explores procrastination behaviours in populations with LD. In the same way that research exploring the motivation beliefs of individuals with LD leads to effective strategies and programming (e.g., Chapman, 1988; Gans et al., 2003), research that investigates the procrastination practices of individuals with LD may result in improved support and lead to an increased understanding of procrastination and motivation in diverse populations. The central research question in this study was, "How do procrastination and related motivation variables operate for individuals with and without LD?"

Participants were 208 undergraduate students, 101 students with LDs identified by a registered psychologist using provincial guidelines (65% female), and 107 students without LD (74% female). Measures included self-report GPA, an academic self-efficacy measure from the Motivation Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1993), a 16-item procrastination measure with proven reliability and validity, (Tuckman, 1991, p. 479), and a measure of self-efficacy for self-regulation (Zimmerman, Bandura, & Martinez-Pons, 1992). The measures were internally reliable, with alpha coefficients ranging from .81 to .90.

Students with LD reported significantly higher levels of academic procrastination,  $F(1, 207) = 8.30, p = .004, \eta^2 = .04$ , and lower self-efficacy for self-regulation,  $F(1, 207) = 16.57, p < .001, \eta^2 = .07$ . There was no difference between the groups for academic self-efficacy  $F(1, 207) = 1.24, p = .27$  or for GPA,  $F(1, 207) = 1.56, p = .21$ . For both groups, procrastination was most strongly related to self-efficacy for self-regulation ( $r = -.64$  and  $-.66$  for the LD and NLD groups, respectively). Academic self-efficacy and procrastination were significantly inversely correlated for the NLD group, but not for the LD group. Significant between-group differences were observed for the level of correlation between procrastination and academic self-efficacy (Fisher's Z-transformation,  $p = .025$ ). For the NLD group, the bivariate correlations conformed to expectations: Procrastination was significantly negatively related to GPA, academic self-efficacy, and self-efficacy for self-regulation. These results are consistent with previous studies that have found individuals with higher levels of procrastination tend to experience lower levels of many functional motivation variables (e.g., Wolters, 2003). The bivariate correlations in the LD sample did not paint as clear a picture. For undergraduates with LD, possessing high academic self-efficacy was not related to lower levels of procrastination, although academic self-efficacy and GPA were positively related; nor did high levels of procrastination result in a lower GPA. For both groups, procrastination showed the strongest relationship with self-efficacy for self-regulation, with the result that undergraduates with or without LD who were confident that

they could manage their learning environments procrastinated less than their peers who had lower self-efficacy for self-regulation.

*Brief discussion.* The results from the third study suggested that undergraduates with LD are moderately optimistic about their academic abilities (academic self-efficacy at the same level as NLD peers), but are less confident than NLD students about their self-regulatory capacities, and also tend to procrastinate more than their NLD peers. Educators and service providers need to be aware that students with LD may experience cognitive and metacognitive difficulties that lead to higher levels of procrastination. For students with LD, academic success is contingent on accurate self-knowledge and on the adoption of self-regulation behaviours (Trainin & Swanson, 2005). The finding that LD and NLD participants in this study display similar levels of academic self-efficacy and achievement (i.e., GPA) suggests that university students with LD may display more appropriately calibrated self-beliefs. The higher levels of procrastination, however, may point to inadequate strategic and procedural knowledge in academic domains, whereby undergraduates with LD are unsure of how to proceed with some academic tasks. It should be noted that in some cases, procrastination can be positive — Chu and Choi (2005) discuss *active* procrastinators who may engage in the same level of procrastination as traditional “negative” procrastinators, but who prefer to work under time pressure and make deliberate decisions to procrastinate. However, the students with LD in this sample rated their levels of procrastination higher, but their levels of self-regulation lower than their peers, suggesting that the LD students were not practicing active procrastination.

## Conclusion and Future Directions

This review of three studies investigating the motivation beliefs of individuals with LD has shown that some students with LD display an optimistic bias towards academic tasks, but it may be that the tendency towards unrealistically optimistic self-beliefs declines in later adolescence and emerging adulthood. All students with LD — in secondary and university settings — expressed low confidence that they could regulate their learning (e.g., organize their learning, study in the face of distractions), but the early adolescents in the first two studies displayed an optimistic stance when asked to estimate their likelihood of success on specific academic tasks. An optimistic bias reflects the tendency to view oneself as less likely than others to experience negative outcomes, and students with LD in the first two studies expressed relatively high levels of academic confidence, even though they lacked confidence to

self-regulate. For the university students in the third study, there was less evidence of optimistic self-efficacy beliefs, but strong evidence of higher levels of academic procrastination and continued low self-efficacy for self-regulation.

Optimism plays a functional motivational role for most people in many endeavors, and high levels of self-concept and self-efficacy have been shown to be associated with higher levels of performance in academic settings. However, naïve optimism in the face of academic challenges may not lead to successful academic functioning for students with LD. Students with LD may be optimistic because of poor metacognitive awareness (e.g., Butler, 1998) and may experience difficulty assessing task demands and evaluating their own cognitive strengths and weaknesses. In a study of typically functioning undergraduate students, Stone (1994) found that initial “first-impression” self-efficacy judgments were biased towards overestimates of personal performance, but that the initial overconfidence bias was reduced through feedback. Kruger and Dunning (1999) explored self-evaluation relative to ability in a variety of domains, and found that the skills required to succeed in a domain are the very same skills required to evaluate competence in that domain. Although Kruger and Dunning’s research was focused on typically functioning undergraduate students, their findings are relevant to LD populations. They suggest that people who lack skill and understanding in a domain suffer from a “dual burden;” they are unskilled, but also unaware — they lack the metacognitive ability to recognize their own lack of skill. From this point of view, the overconfidence of students with LD might be expected: these students not only lack important domain skills, but they may be relatively unaware of their lack of skill. This combination of cognitive and metacognitive deficits may result in the optimistic bias seen in the first two studies examined in this article.

A comparison of the findings from the first two studies with findings from the third study may point to developmental changes in the unexpected optimism of students with LD. Teacher-participants in the second study hinted at a change in the accuracy of self-assessments in adolescence, whereby students in later adolescence “are more realistic — they seem to be aware of where their strengths and weaknesses lie.” The undergraduates with LD in the third study did not differ significantly from their NLD peers on measures of academic self-efficacy or academic performance (GPA), suggesting a realistic assessment of self-beliefs and capabilities that was lacking in the early adolescents in the first two studies. In spite of the apparent improvement in the calibration of self-beliefs and performance, lingering motivation problems remained in the sample of undergraduates with LD, and as a group they displayed lower levels of self-efficacy for self-regulation, and higher levels of procrastination than their undergraduate peers without LD. Caution should be exercised when

comparing the early adolescents with LD and the undergraduates with LD in the third study — participants in the first two studies were not in academically selective schools, whereas the undergraduates with LD in the third study had to meet entrance requirements (GPA, high school marks) in order to enter their post-secondary academic programs, and differences between the two groups may consist of a host of factors apart from age or developmental level.

Teachers should be aware that expressions of high academic confidence by adolescents with LD may not reflect adequate preparation and healthy optimism, but may serve a self-protective role, in which students declare a strong academic confidence to mask anxiety and academic insecurities (Stone & May, 2002). The overly optimistic self-efficacy beliefs seen in adolescents with LD may also reflect a lack of self-awareness, and teachers may need to provide targeted feedback in order to overcome metacognitive deficits. Pajares (1996) suggests that teachers should focus on improving their students' calibration skills through improved task understanding, rather than focusing on lowering the student's efficacy beliefs. Improving metacognitive skills (e.g., Butler, 1998; Meltzer et al., 1998) — especially awareness of task demands and personal strengths and weaknesses — should bring about greater congruence between efficacy beliefs and performance. Bransford et al. (2006) remind practitioners that metacognition is not a “knowledge-free skill” that is developed in a content vacuum. Helping students learn to take a metacognitive stance to their learning requires instruction that is situated in the context of individual subject areas. Developing self-monitoring, reflection, and strategy-use in students with LD requires targeted and deliberate instruction and practice from classroom and special education teachers.

A series of questions arise from this review of recent research in the area of the motivation of students with LD. First, are adolescents with LD more likely to be unduly optimistic on a variety of tasks, including non-academic tasks, or is the unrealistic optimism specific to areas of academic weakness? That is, would an adolescent who has a reading disability miscalibrate his or her capability to successfully complete a complicated design task in a computer class? Second, is naïve optimism a tendency exclusive to students with LD, or is it a tendency of all individuals with lower skill levels in a given domain? This question relates to LD definitional debates about the exclusivity of LD diagnoses, and whether individuals with LD exhibit unique cognitive profiles. Third, what are the sources and the function of the academic optimism of adolescents with LD? Does unwarranted optimism serve a self-protective role, as has been suggested (Alvarez & Adelman, 1986), or is it only the result of weaknesses in metacognition and task analysis? Fourth, what is an appropriate response for teachers who work with students with LD who are overly



optimistic? When encountering students who resist spending time in additional preparation or study because they believe themselves to be adequately prepared, should teachers explicitly point out the deficit in the student's reasoning? Should teachers deliberately lower the student's higher-than-warranted academic self-efficacy with the hope of increasing effort and persistence? Finally, do the calibration beliefs and the unwarranted optimism of early adolescents change in later adolescence? The evidence for developmental changes in the calibration of academic self-efficacy and academic performance is tenuous, and further research should investigate how motivation beliefs change for students with LD from early adolescence into emerging adulthood. These questions warrant further research, and the answers will not only provide more appropriate support for individuals with LD, but will extend the boundaries of motivation research, and will help researchers better understand how motivation constructs operate in diverse populations.

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